

ABSTRACT OF THE DISCLOSURE

Devices and methods are disclosed for containing and processing samples on the surface of supports. Biopolymer features are attached to the surfaces of the supports. A device in accordance with the invention comprises a housing and a support confined by the housing. The housing comprises a well having walls and at least one wall extending from the edge of the well. The height of the walls of the well is at least great enough, and the design of the at least one wall is such, that liquid contained in the well is not drawn out of the well to any substantial degree by surface tension or small movements or small mechanical vibrations. In one embodiment, the at least one wall is designed such that corners thereof are curved or are distant from the edge of the well to substantially eliminate wicking of liquid from the well. Also disclosed are methods for mixing materials on the surface of a support. A sample is incubated with the surface of the support of the aforementioned device. The sample is removed from the surface, a residual amount of the sample remaining on the surface. The surface is contacted with a wash solution. A stream of gas is directed at the surface of the support. The pressure of the stream and the angle of the stream create a vortex on the surface sufficient to mix the sample and the wash solution. The wash solution is then removed from the surface. Also disclosed are methods for conducting binding reactions using the devices of the invention.